AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended) [[The]] A rolling bearing apparatus ~~according to claim 2, wherein~~ , comprising:

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said non-rolling element;

said rotation detector comprising:

a rotor provided in said rolling element;

a stator provided in said non-rolling element; and

an exciting winding and output windings wound to said stator, wherein

said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding; and

said stator [[is]] being formed with a plurality of polar teeth provided in a surface of said non-rolling element which opposes said rolling element ~~in a circumferential direction~~ while said exciting winding and output windings are wound to each polar tooth of said stator, and

said rotor ~~comprises~~ comprising a flat portion formed on a circumference of the surface in said rolling element which opposes said plurality of polar teeth provided in said non-rolling element.

4. (Currently Amended) [[The]] A rolling bearing apparatus ~~according to claim 2, wherein~~ , comprising:

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said non-rolling element;

said rotation detector comprising:

a rotor provided in said rolling element;

a stator provided in said non-rolling element; and

an exciting winding and output windings wound to said stator, wherein

said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding;

said rolling element [[is]] being an inner ring;

said rotor [[is]] being formed by an outer peripheral shoulder of said inner ring; and

a flat portion [[is]] being formed on a circumference of said outer peripheral shoulder.

5. (Currently Amended) [[The]] A rolling bearing apparatus ~~according to claim 2, wherein~~ , comprising:

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said non-rolling element;

said rotation detector comprising:

a rotor provided in said rolling element;

a stator provided in said non-rolling element; and

an exciting winding and output windings wound to said stator, wherein

said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding;

said rolling element [[is]] being made up of two inner rings disposed adjacent to each other in an axial direction and each having an inner ring raceway groove;

said rotor [[is]] being provided [[in]] at an area whereat outer peripheral surface of areas of said two inner rings ~~, which face~~ oppose each other in the axial direction;

said non-rolling element [[is]] being an outer ring [[being]] disposed concentrically with said two inner rings in an outward-radial direction ~~, while~~ ;

said outer ring having two outer ring raceway grooves in an inner peripheral surface thereof, said two outer ring raceway grooves being separated away from each other in an axial direction [[by]] and opposing [[each]] respective ones of said inner ring raceway ~~groove~~ grooves of said two inner rings; and

said stator [[is]] being provided in a region between [[both]] said outer ring raceway grooves of said outer ring.

6. (Currently Amended) The rolling bearing apparatus according to claim 5, wherein:

said rotor has first and second inner peripheral surfaces disposed adjacent each other in the axial direction;

said inner rings respectively have inner ring outer surface end portion adjacent one another in the axial direction;

said rotor is fixed by fixedly fitting said first inner peripheral surface ~~a half-portion of an inner peripheral surface of said rotor in an axial direction into~~ onto [[one]] the inner ring outer surface end portion ~~side in an axial direction~~ of one of said inner rings; and

~~a single bore diameter of other half-portion of in the axial direction is made larger than said half-portion in the axial direction so that said other half-portion becomes non-contact with other inner ring~~

said second inner peripheral surface has a greater diameter than said inner ring outer surface end portion of another one of said inner rings and is disposed opposing said inner ring outer surface end portion of said another one of said inner rings and out of contact with said inner ring outer surface end portion of said another one of said inner rings .

7. (Original) The rolling bearing apparatus according to claim 5, wherein said exciting winding and said output windings are lead out from a through-hole provided

in an area on a center of a circumference of said outer ring in an axial direction.

8. (Currently Amended) The rolling bearing apparatus according to claim [[2]] 3, wherein said rolling element comprises:

a hub wheel;

inner rings fitted in an outer periphery of said hub wheel; and

a nut mounted on one end side of said hub wheel in an axial direction for connecting said inner rings to said hub wheel, wherein said nut serves as said rotor.

9. (Currently Amended) The rolling bearing apparatus according to claim [[2]] 3, wherein said rolling element comprises:

a hub wheel with a flange provided in an outer periphery closer to an end of one spindle in an outward-radial direction while having an outer peripheral surface with a small diameter in an outer peripheral surface on an end of vehicle inner side;

an inner ring mounted outside the small-diameter outer peripheral surface of said hub wheel;

a nut spindle portion formed on the vehicle inner end of said hub wheel; and

a nut [[being]] helically mounted on said nut spindle portion, said rotor [[is]] being formed of said nut;

said non-rolling element is an outer ring disposed on an outer periphery side of said hub wheel;

a cap is mounted in a vehicle inner side opening of said outer ring; and

said stator is fixed to an inner periphery of said cap and said stator opposes said nut in a radial direction.

10. (Currently Amended) [[The]] A rolling bearing apparatus ~~according to claim 2, wherein~~ , comprising:

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said non-rolling element;

said rotation detector comprising:

a rotor provided in said rolling element;

a stator provided in said non-rolling element; and

an exciting winding and output windings wound to said stator, wherein

said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding;

said rolling element ~~comprises~~ comprising:

a hub wheel with a flange provided in an outer periphery closer to an end of one spindle in an outward-radial direction while having outer peripheral surfaces with a large diameter and a small diameter in an outer peripheral surface on an end of said vehicle inner side; and

inner rings mounted outside the small-diameter outer peripheral surface of said hub wheel;

said non-rolling element [[is]] being an outer ring disposed on an outer periphery of said hub wheel;

said stator [[is]] being mounted in a center region of an inner peripheral surface of said outer ring in an axial direction; and

said rotor [[is]] being formed by notches provided in a plurality of areas on an circumference of a large-diameter outer peripheral surface with a large diameter of said hub wheel, which opposes said stator in a radial direction.

11. (Currently Amended) [[The]] A rolling bearing apparatus ~~according to claim 2, wherein~~ , comprising:

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said

non-rolling element;

said rotation detector comprising;

a rotor provided in said rolling element;

a stator provided in said non-rolling element; and

an exciting winding and output windings wound to said stator, wherein

said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding;

said rolling element ~~comprises~~ comprising:

a hub wheel with a flange provided in an outer periphery closer to an end of one spindle in an outward-radial direction while having outer peripheral surfaces with a large diameter and a small diameter in an outer peripheral surface on an end of said vehicle inner side and having an inner ring raceway groove in said large-diameter outer peripheral surface; and

inner rings mounted outside said small-diameter outer peripheral surface of said hub wheel;

said non-rolling element [[is]] being an outer ring disposed concentrically

with said two inner rings in an outward-radial direction while having two raceway grooves in an inner peripheral surface being separated away from each other in an axial direction opposing each raceway groove of said two inner rings;

a vehicle outer-side raceway groove of said outer ring [[is]] being made to have a larger diameter than that of a vehicle inner-side raceway groove, the inner ring raceway groove of said hub wheel is made to have a larger diameter than that of the raceway groove of said inner ring [[, and]];

a PCD of said vehicle outer side ball group, among two groups of the vehicle inner side and vehicle outer side mounted in between said each raceway groove, [[is]] being made to have a larger diameter than that of PCD of a vehicle inner side ball group;

said stator [[is]] being mounted in a canter region of an inner peripheral surface of said outer ring in an axial direction; and

said rotor [[is]] being formed by notches provided in a plurality of areas on an circumference of an outer peripheral surface region in an outer peripheral surface of said hub wheel, which opposes said stator in a radial direction.

12. (Currently Amended) A [[The]] rolling bearing apparatus ~~according to claim 1, further~~ , comprising

a rolling element;

a non-rolling element disposed concentrically with said rolling element;

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling state of said rolling element and said non-rolling element; and

a generator for generating a voltage in accordance with rotation of said rolling element and inputting the voltage as an input exciting voltage to said rotation detector.

13. (Original) The rolling bearing apparatus according to claim 12, wherein said generator comprises:

a generating rotor provided in said rolling element by disposing magnetic poles with different polarities alternately in a circumferential direction; and

a generating stator provided in said non-rolling element, which has an electric coil opposing the magnetic poles of said generating rotor in an radial direction.

14. (Currently Amended) The rolling bearing apparatus according to claim [[1]] 3, further comprising a radio transmitter for radio-transmitting signals outputted from said rotation detector to a signal processing unit provided outside.

15. (Original) The rolling bearing apparatus according to claim 14, further comprising a generator for generating a voltage in accordance with rotation of said rolling element and inputting the voltage as an input exciting voltage to said rotation

detector while supplying it as a driving voltage to said radio transmitter.

16. (Currently Amended) The rolling bearing apparatus according to claim [[1]] 3, further comprising a signal processing unit for processing output signals from said rotation detector.

17. (Original) The rolling bearing apparatus according to claim 12, further comprising a signal processing unit for processing output from said generator.

18. (Original) The rolling bearing apparatus according to claim 14, further comprising a signal processing unit for processing output signals from said radio transmitter.

19. (Currently Amended) The rolling bearing apparatus according to claim [[1]] 3, wherein said rotation detector comprises a rotor provided in said rolling element, a stator provided in said non-rolling element, an exciting winding and output windings wound to said stator, and further comprises a resolver which induces a voltage according to a gap permeance between said rotor and said stator in response to an exciting voltage inputted to said exciting winding from said output windings.

20. (New) The rolling bearing apparatus according to claim 3, wherein said

non-rolling element opposes said rolling element at least in part in a radial direction of the rolling bearing apparatus.

21. (New) A rolling bearing apparatus, comprising:

a rolling element including a first raceway wheel;

a non-rolling element disposed concentrically with said rolling element and including a second raceway wheel, said rolling element rolling with respect to said non-rolling element;

a rotation detector providing an induced voltage output produced from an input exciting voltage and influenced according to a gap permeance related to a relative rolling state of said rolling element and said non-rolling element;

a rotor disposed in said rolling element;

a stator disposed in said non-rolling element;

an exciting winding and output windings disposed on said stator, said exciting winding being excited by said exciting voltage and said output winding providing said induced voltage output;

said rotor and said stator being disposed opposing one another in an annular space between said rolling element and said non-rolling element; and

said output windings outputting said induce voltage output at a level determined by the gap permeance between said rotor and said stator and by said input exciting voltage.